

**ABSTRACT OF THE INVENTION**

An active noise attenuation system for an air induction assembly is operably connected to an engine that generates a low frequency noise having a noise profile defining a peak noise. The system has an air inlet duct housing with an inlet and an outlet connected to the engine. A resonator is supported by the housing and is positioned between a speaker assembly and the engine to attenuate the peak noise resulting in an attenuated low frequency engine noise. A microphone senses the attenuated low frequency engine noise and generates an attenuated low frequency engine noise signal. A controller receives and phase shifts the signal and sends the signal to the speaker to generate a sound field to cancel or reduce the attenuated low frequency engine noise signal.

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